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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/736,731	12/11/2000	Patrick Siu-Ying Hung	CP0005US	8072

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EXAMINER

LABAZE, EDWYN

ART UNIT PAPER NUMBER

2876

DATE MAILED: 07/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/736,731

Applicant(s)

HUNG ET AL.

Examiner

EDWYN LABAZE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claim 21 is objected to because of the following informalities: the applicant fails to show trace ability of the refresh period measurement from the flowchart of Fig. 3B. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-6 and 8-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Brandorff et al. (U.S. Patent No. 5,408,084).

Re claim 1: Brandorff discloses a two-dimensional bar code reader¹⁰ (see fig.1), which includes a CCD camera assembly 200 (col. 2, lines 49), a shroud 300 (col.2, lines 58) that blocks the ambient light from entering the imaging camera and an illumination assembly including of LED illuminators/lamps 100 (col. 2, lines 59-63) for uniformly illuminating the target area.

Re claim 4: Brandorff teaches a narrow bandpass filter or analyzer disposed between the camera lens 220 and the target surface (col.5, lines 25-35).

Re claim 5: Brandorff discloses in figure 1 how the scanner can be held at a flat angle or a 90-degree angle relative to the surface.

Re claim 6: Brandorff teaches that the imaging camera is disposed inside the apparatus at a fixed distance (not specify by Brandorff) above the target surface (col.5, lines 5-10).

Re claim 8: Brandorff teaches that the portable data collection device has a photodiode or phototransistor 192 (col. 3, lines 38+) for sensing the reflected light from the target to establish exposure time to be used during image acquisition.

Re claim 9: Brandorff discloses a scanner 10, a shroud 300 completely surrounding the camera assembly 200 including the imaging camera (not shown by Brandorff) mounted inside the apparatus at a fixed distance from the lower edge of the shroud (col.5, lines 6-10), a phototransistor 192 (col.3, line 38) and an illumination assembly 100, which includes the LEDs/lamps.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 10-14, 23-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Feng (U.S. Patent No. 6,062,475).

Re claim 10: Feng discloses an optical scanning device 10 capable of reading bar code providing a scanner 287 (col. 22, line 15) with a color two-dimensional photosensor array 48 also known in the art as photodetector (col.7, line 16) and illumination lamp/LED 42 (col. 7, line

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7) to measure the amount of light reflected from the target (col. 21, lines 10-22), determine if additional illumination is required prior to scan image.

Re claim 11: Feng teaches that the photodetector 48 is a photodiode (col.20, line 31-34)

Re claim 12: Feng discloses that the photosensor array assembly 48 is part of the board camera assembly 38 (col.7, lines 8-21)

Re claim 13: Feng teaches the image from the electronic display is an emissive display such television (col.27, lines 8) or a VGA monitor (col.27, line13) meaning having the power of emit light.

Re claim 14: Feng discloses that the above system also includes a gain control circuitry 252 (col.20, line 57) for controlling the exposure gain/level (col.20, lines 37-45) and the exposure parameter.

Re claim 23: Feng shows that the above optical scanning device10 also includes a method of capturing image pixels (col.20, lines 32-34), digitizing the signal using an analog-to-digital converter circuitry 264 (col.21, lines 5-11), providing a processor to store the digitized image (col. 21, lines 23-27), defining transmittivity as an aspect ratio of the transmitted radiation to arriving radiation (col.21, lines 55-56), scaling the digitized image (col.21, lines 27-30) and decoding the scaled image (col.21, lines 40-48).

Re claim 24: Feng furthermore teaches that the above system includes a method of capturing the image from an electronic display (col.25, line 28), digitizing the image into color data digital data 320 (col.27, lines29-30), storing the image into a buffet memory 288 (col. 27, lines 36-37), and decoding the image through a D/A converter 322 (col.27, line 40) made available to the analog port 326.

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Re claim 25: Feng teaches that the electronic display is a color display (col.27, lines 43-49).

Re claim 26: Feng discloses from the flowchart of Fig.32 the method and steps of capturing a first image 402, evaluating the exposure level (determine if frame is acceptable) 404, adjusting the exposure parameter 406, capturing a second image 402 and decoding of the captured image 412.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

6. Claims 15-16, 17, 19-20, 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Roustaei (U.S. Patent No. 6,347,163).

Re claim 15: Roustaei discloses an optical scanning device 100, including a photodiodode or photodetector 203 to measure the amount of light from an electronic display/target, provide additional illumination prior to scan the signal (col.6, lines 9-32).

Re claim 16 and 22: Roustaei teaches a scanning device 100, an imaging reader (col.15, line 25), which includes a detector 204 to set the exposure time (col. 7, lines 2) less than 30 ms and employing a FIFO (first in, first out) which is written during the dynamic random access memory DRAM refresh cycle (col.7, lines 1-8). Note that the DRAM supports 4 versions of refresh. Furthermore Roustaei discloses an exposure range of 20 ms maximum and 500 nanoseconds minimum exposure time. Thus, it is known for those skilled in the art the exposure is at least twice the refresh cycle. For example, setting up an exposure time at 33 milliseconds would require a refresh rate of 60Hz.

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Re claim 17-19: Roustaei discloses an automatic exposure range with maximum exposure time of 20 milliseconds and a minimum of 500 nanoseconds (col.17, lines 12-15). The relationship between the exposure time and the refresh period is obtained by taking the inverse value of the refresh rate (from Hertz to seconds) and should be at least twice, ten times or between ten and twenty times of the exposure time.

Re claim 20: Roustaei teaches the steps of capturing a two-dimensional image 108, which can be a variety of barcode symbols, fingerprints, images, signatures, and photographs (col.5, lines 6-10) from an electronic display and scanning according to the exposure level and parameter (col.7, lines 15-25).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brandorff (U.S. 5,408,084) in view of Feng (U.S. 6,062,475).

The teachings of Brandorff have discussed above.

Brandorff fails to disclose the spectral range of the imaging camera.

Feng teaches a portable data collection device featuring an optic assembly with a spectral range of 400-700 nm (col.14, line 36).

In view of Feng's teaching, it would have obvious to an artisan of the ordinary skill in the art at the time of the invention was made to employ the specific range (i.e., 400-700 nm) into the

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system of the Brandorff in order to provide a clear image, and avoid the use of filter because below the 400nm mark the image will be too dark and above 750 nm the image will be blurry. Therefore, it would have been an obvious extension of the teaching of Brandorff.

9. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brandorff (U.S. 5,408,084) in view Roustaei (U.S. 6,347,163).

Re claim 3: Brandorff discloses a CCD camera 210 (col.4, line 46).

Brandorff fails to show the CCD imaging elements.

Roustaei discloses a reference table (col.8, lines 10-15) measuring the photopic reflectance with the meter and placement of the targets in uniform illumination (col.4, lines1-5).

In view of Roustaei's teaching, it would have obvious to an artisan of the ordinary skill in the art at the time of the invention was made in order to relate vision in bright light with light-adapted eye of the Brandorff's teaching. Furthermore, the photopic curve indicating the sensitivity of the human eye extends approximately from 380 nm to 750 nm and enables the cameras to measure the output image in a manner that is consistent to the human visual system. Therefore, it would have been an obvious expedient.

10. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brandorff (U.S. 5,408,084) in view Zheng et al. (U.S. 5,399,852).

The teachings of Brandorff have been discussed above.

Brandorff fails to disclose a specific distance from the surface area and a viewing width of the camera lens in order to determine the viewing angle.

Zheng et al. teaches about the working range of the camera 40 related to the distance or height from the surface area to the lens and the image viewing width of the imaging camera

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(col.7, lines 10-27). For example, giving that the camera is 3.0 inches above the surface with a viewing field of 2.5 inches across. Thus, the viewing angle will be = inverse tangent $[3.0/\{2*2.5\}]$, which is 31 degrees greater than the applicant's specification.

In view of Zheng's teaching, it would have obvious to an artisan of the ordinary skill in the art at the time of the invention was made to specify the viewing limitations in order to eliminate the need to refocus the camera. Moreover, it maintains a uniform illumination of the surface, controls the intensity of the illumination and reduces specular reflection as taught by Brandorff. Therefore, it would have been an obvious extension as taught by Brandorff.

11. Claims 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Feng (U.S. 6,062,475) in view of Tafoya (U.S. 5,984,186).

The teachings of Feng have been discussed above.

Feng fails to disclose a method of measuring the refresh period and setting the exposure time of the scanner according to the refresh-period on Fig.31 step 412 back to step 402.

Tafoya discloses a CCD-base bar code scanner, which includes a decoder unit 540 (col.6, line 28), a master CPU 1130 (col.15, line3), which initiates a read cycle.

In view of Tafoya's teaching, it would have obvious to an artisan of the ordinary skill in the art at the time of the invention was made to generate a subroutine in the CPU to measure the refresh period once decoding the image is not possible and to set the exposure time for optimum contrast and clarity. During the decoding, when the count is not zero and is not an odd number, an output refresh period is initiated to transfer data from the RAM to the host. Therefore it would have been an obvious extension of the teaching of Feng and an expedient.

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12. Claims 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Feng (U.S. 6,062,475) in view of Wilz et al. (U.S. 5,616,908).

The teachings of Feng have been discussed above.

Feng fails to show the method for measuring the electronic display for flickering and determining the flickering period.

Wilz et al. discloses an automatic hand-supportable bar code reading device 2 (col.7, lines 29-30) with flickering laser scanner beam for improved visibility thereof during bar code symbol reading.

In view of Wilz's teaching, it would have obvious to an artisan of the ordinary skill in the art at the time of the invention was made to use a flickering system in order to avoid noticeable brightness variation. It has been found that the refresh rates from an emissive display in excess of 60 Hz are necessary to visually prevent a noticeable flicker. Furthermore, by adding the flickering system to the teaching of Feng will improve image quality in reducing if the eye is able to perceive an individual sub-field image. Therefore, it would have been an extension to the teaching of Feng.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zheng U.S. Patent No. 5,517,018 discloses a method and apparatus for illuminating and imaging of a surface using fast time.

Zheng U.S. Patent No. 5,567,934 teaches a method and apparatus for illuminating and imaging of a surface using opaque shroud.

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Feng U.S. Patent No. 5,834,754 discloses a portable collection device with viewing assembly

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWYN LABAZE whose telephone number is (703) 305-5437.

The examiner can normally be reached on 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (703) 305-3503. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

el
June 17, 2002



THIEN M. LE
PRIMARY EXAMINER